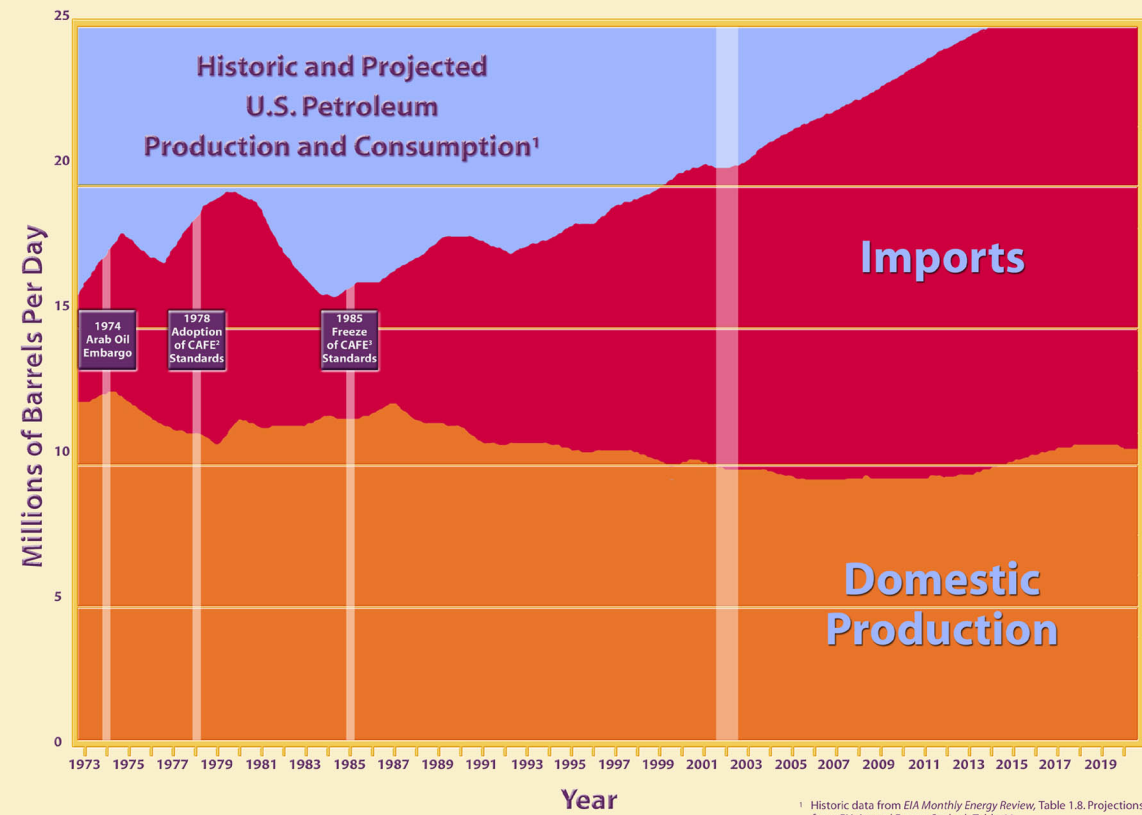
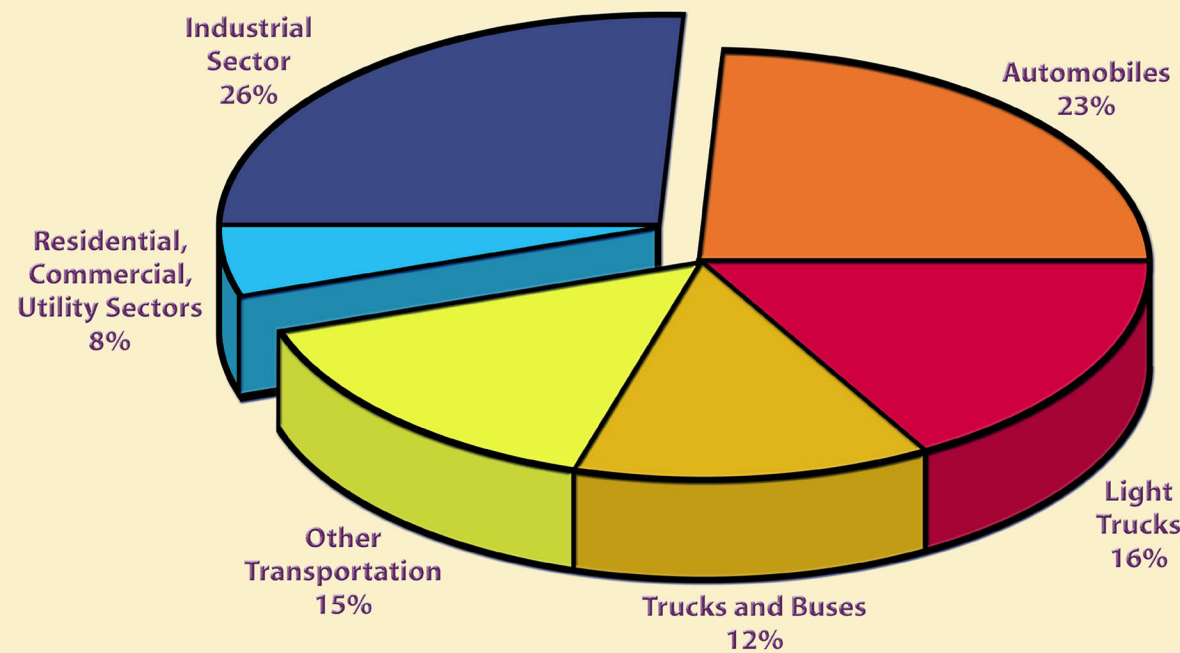


U.S. Dependence on Foreign Oil is Increasing



Transportation is the Primary Cause 1999 U.S. Petroleum Consumption⁴

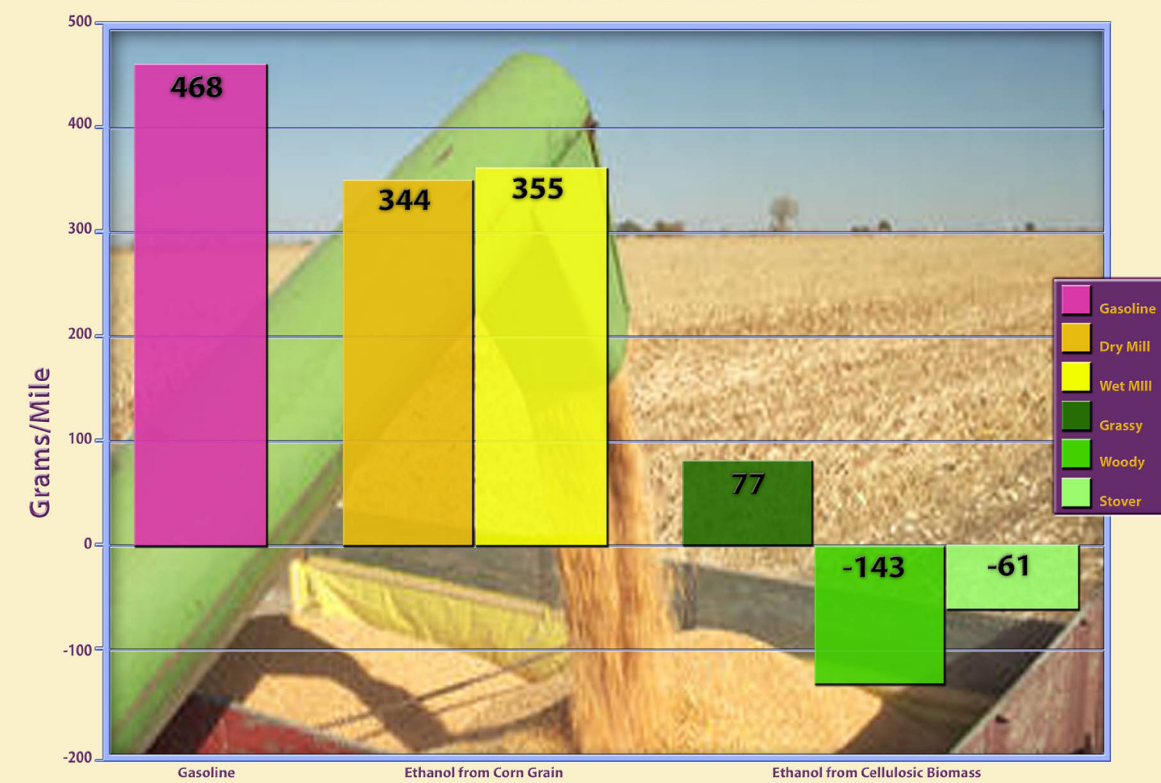


Bioethanol Production and Use

—Uses Less Petroleum¹

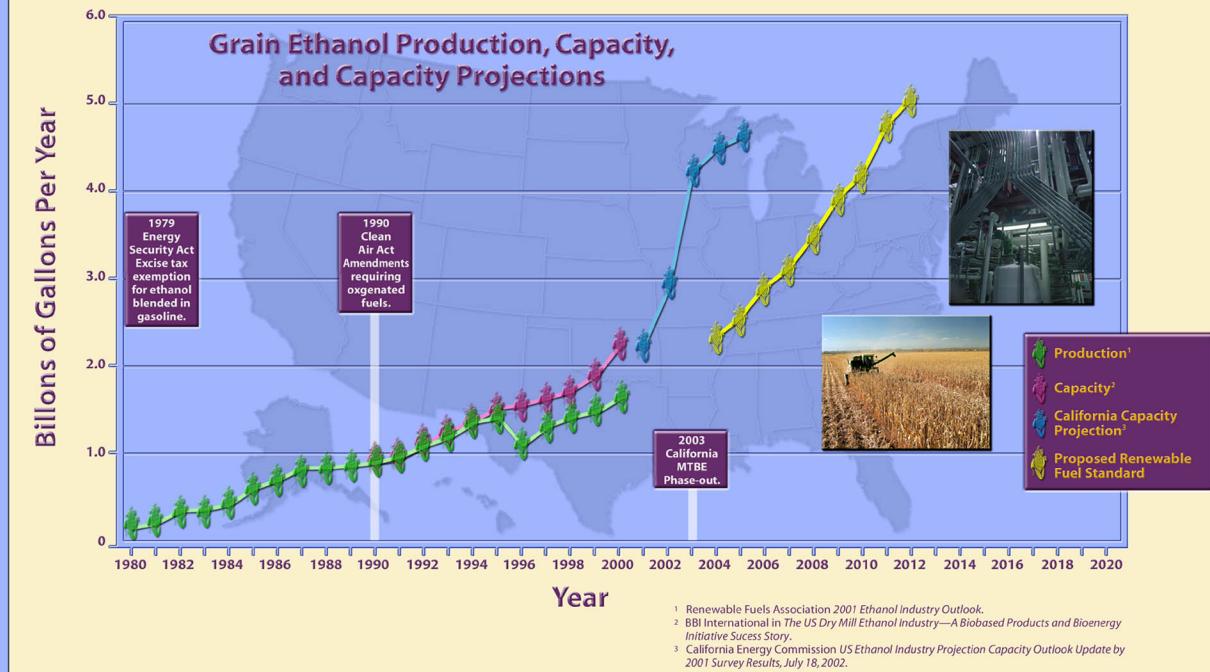


—Emits Less Greenhouse Gas¹

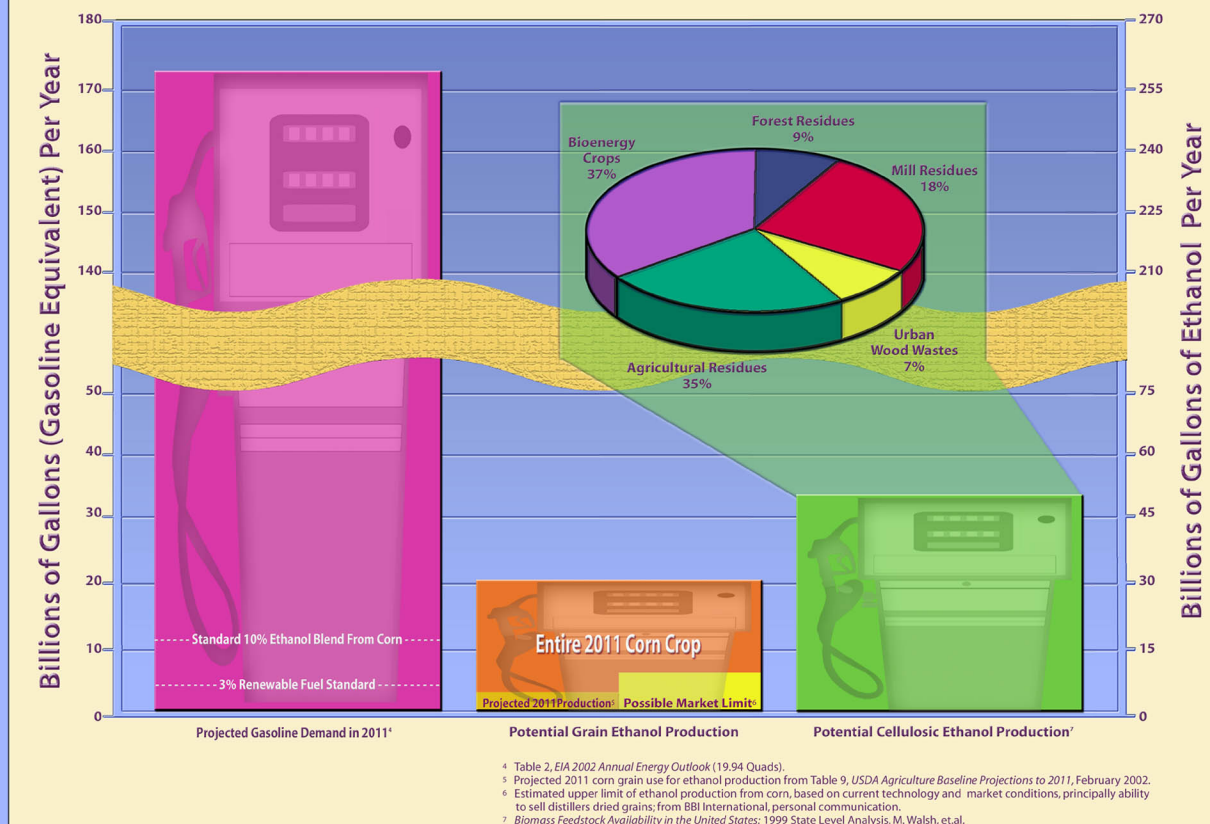


Note: includes electrical generation from burning lignin residue, making negative use or emissions possible.

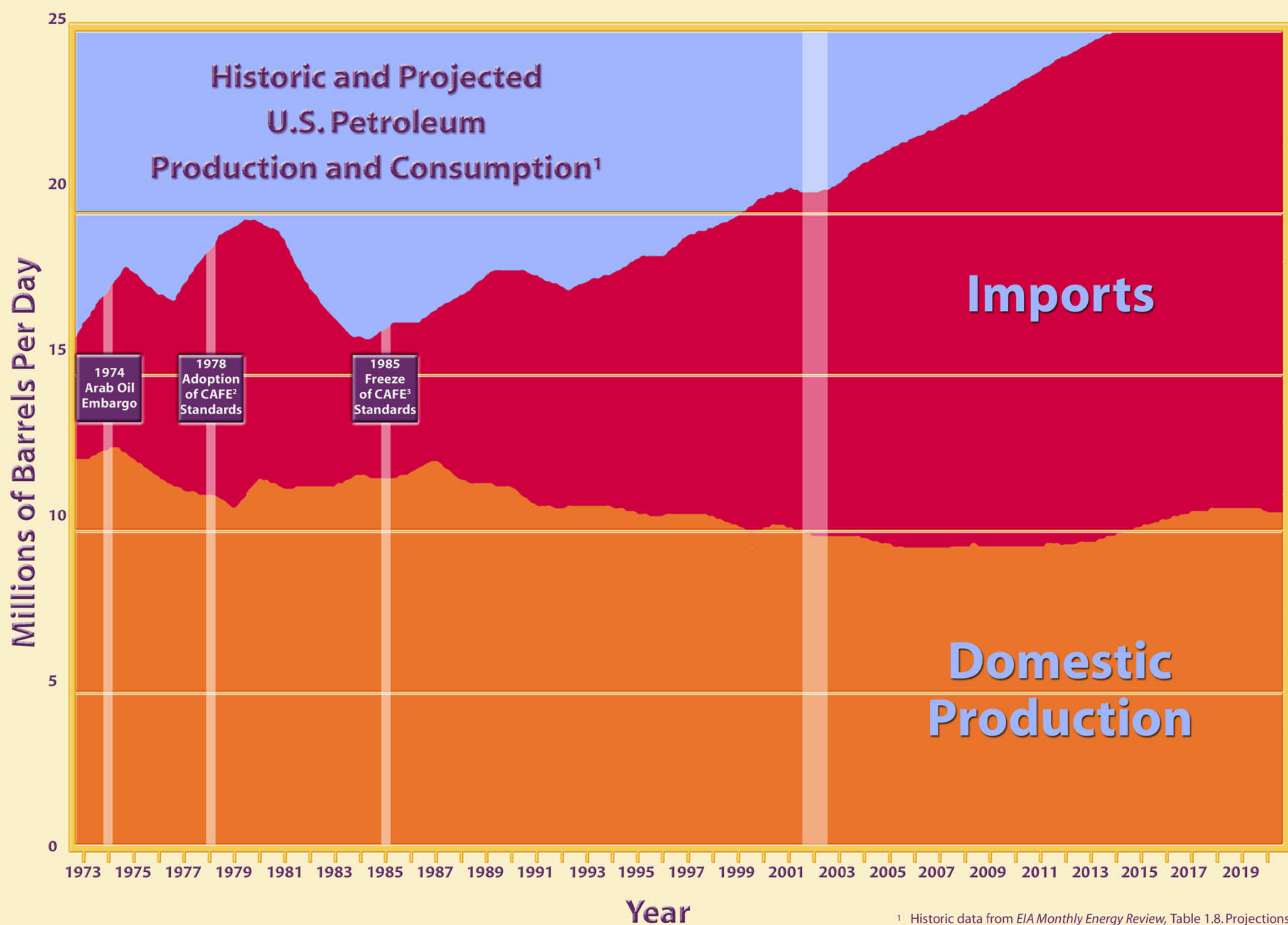
Grain Ethanol Use is Expanding Rapidly



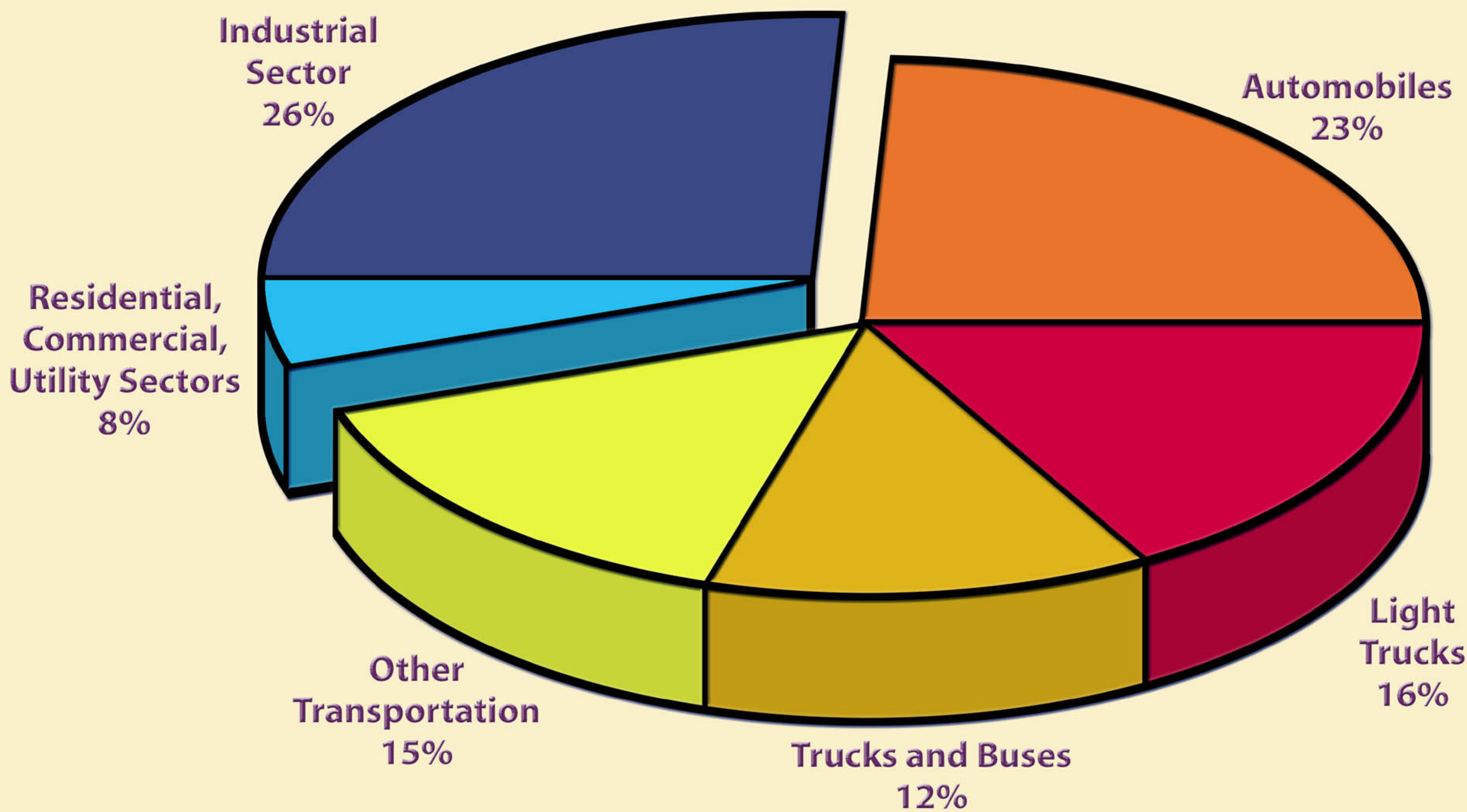
—But Can Only Displace a Small Portion of the Gasoline Market... Cellulosic Ethanol Can Substantially Increase that Portion



U.S. Dependence on Foreign Oil is Increasing



Transportation is the Primary Cause 1999 U.S. Petroleum Consumption⁴



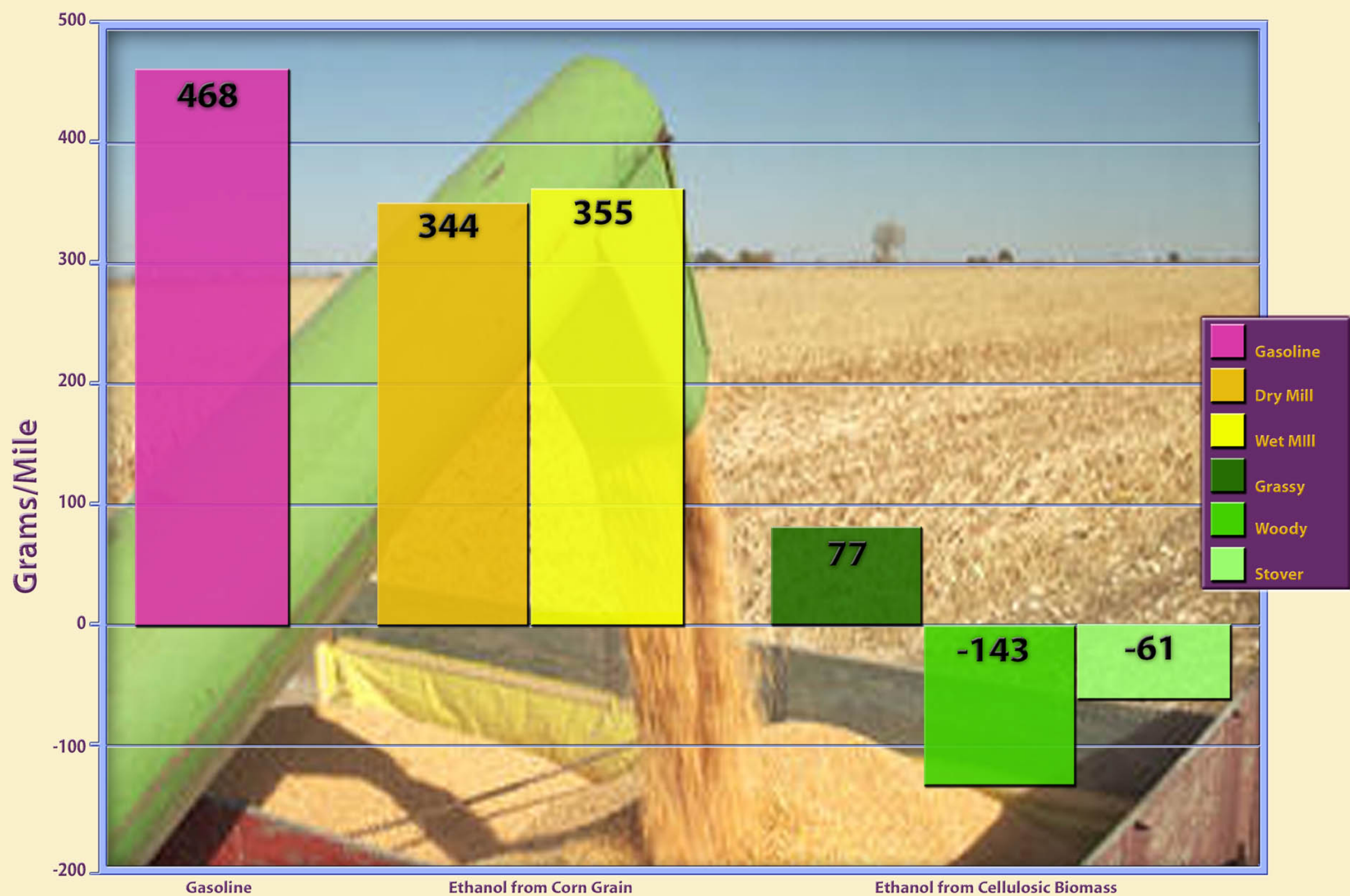
⁴ Data from Table 2.5 of the U.S. Department of Energy's Transportation Energy Data Book: Edition 21. Oak Ridge National Laboratory and Figure 5-12a EIA Annual Review.

Bioethanol Production and Use

—Uses Less Petroleum¹



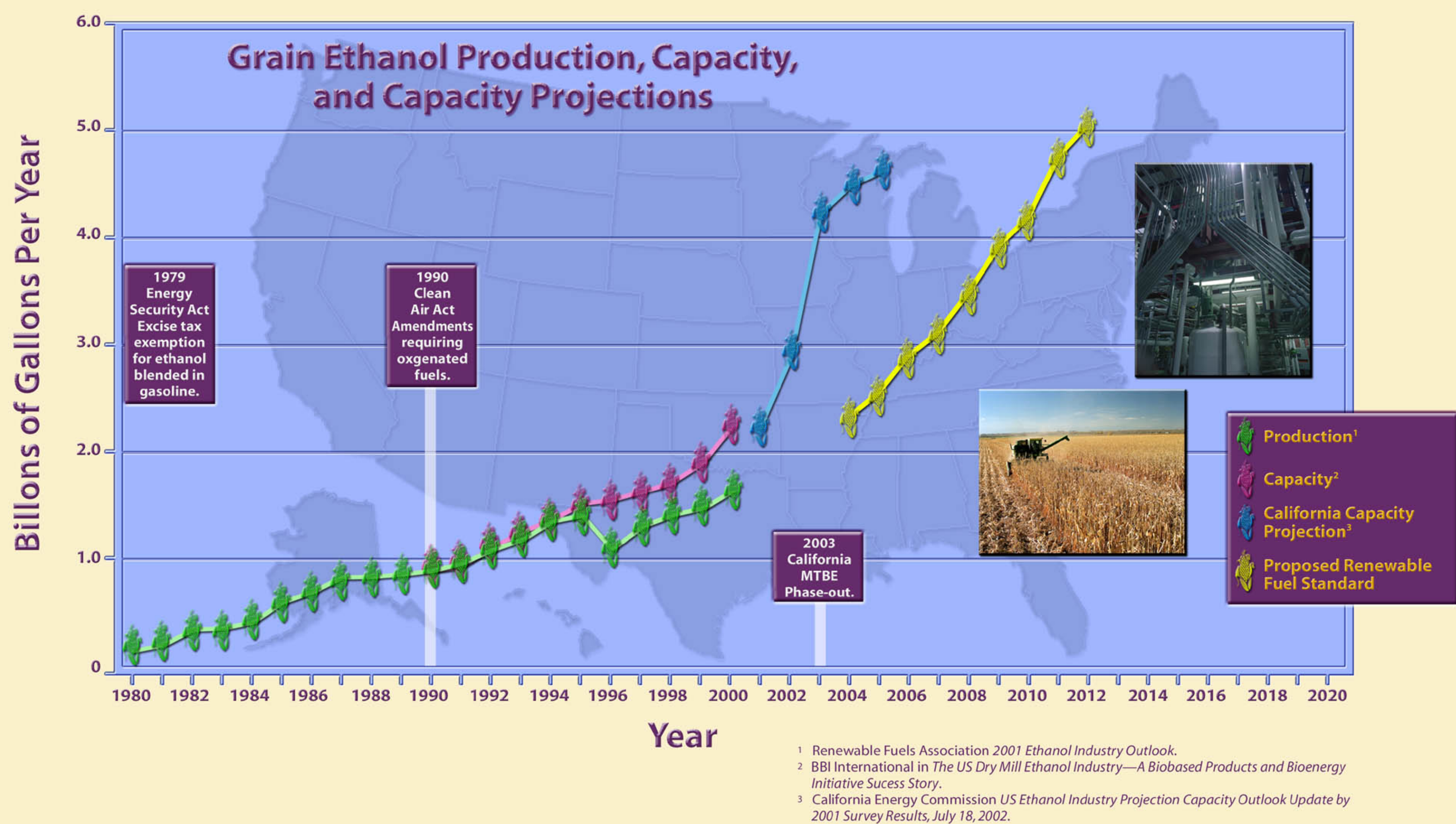
—Emits Less Greenhouse Gas¹



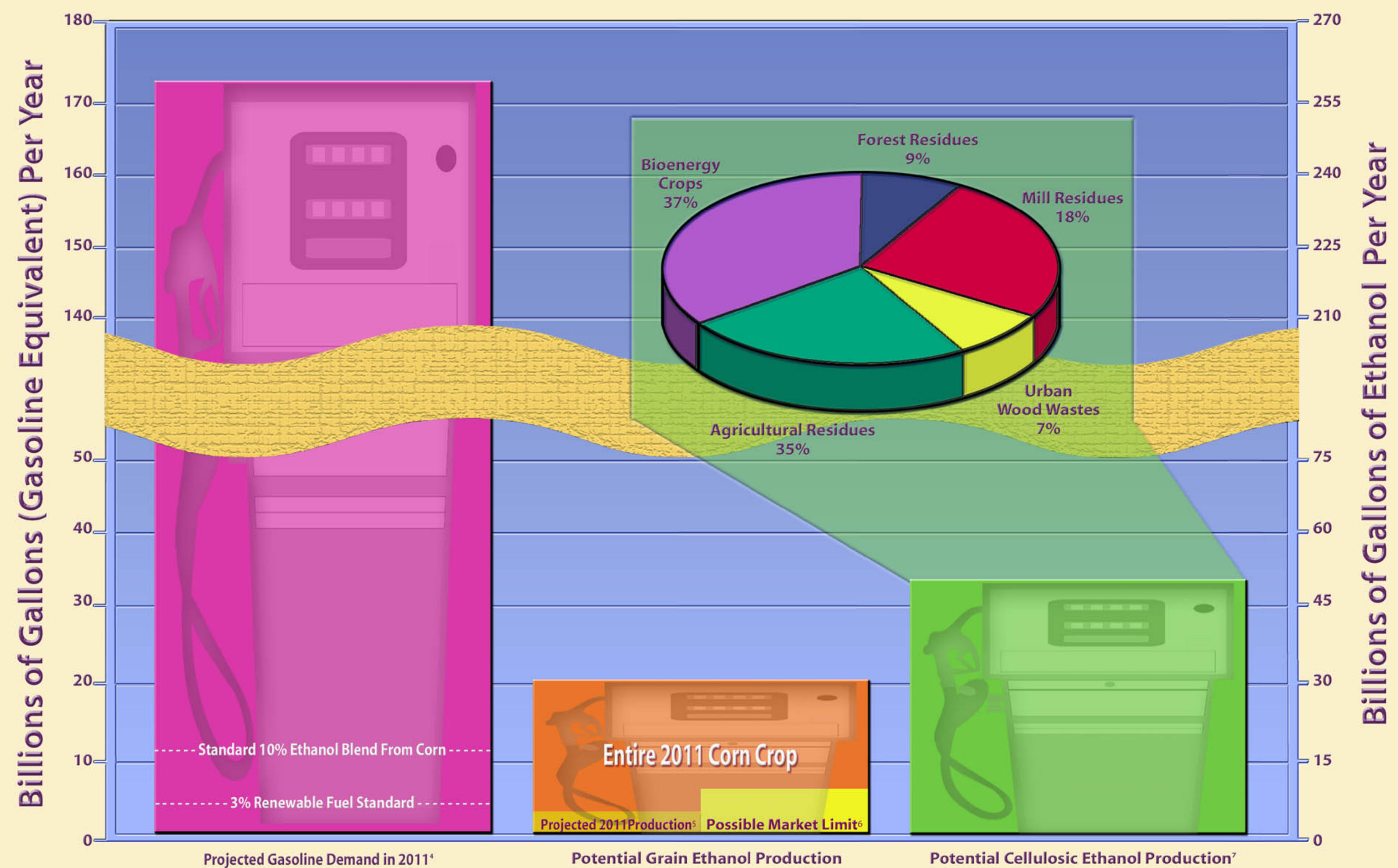
¹ Calculations taken from Table 8 and Figures 3 and 5 of "Effects of Fuel Ethanol Use On Fuel-Cycle Energy and Greenhouse Gas Emissions." 1999. Wang, Saricks, Santini. Argonne National Laboratory. ANL/ESD-38 (Near Future Cases for E-10 Use), except for corn stover ethanol which is taken from a forthcoming NREL life-cycle analysis.

Note: includes electrical generation from burning lignin residue, making negative use or emissions possible.

Grain Ethanol Use is Expanding Rapidly



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⁴ Table 2, *EIA 2002 Annual Energy Outlook* (19.94 Quads).
⁵ Projected 2011 corn grain use for ethanol production from Table 9, *USDA Agriculture Baseline Projections to 2011*, February 2002.
⁶ Estimated upper limit of ethanol production from corn, based on current technology and market conditions, principally ability to sell distillers dried grains; from BBI International, personal communication.
⁷ *Biomass Feedstock Availability in the United States: 1999 State Level Analysis*. M. Walsh, et.al.